

a unifoliolate bract. Calyx-teeth much longer than the tube, almost equaling than the corolla. Leaves subsessile, pinnately trifoliolate or the upper sometimes unifoliolate. (*Psychopsis*, Nutt. in Torr. and Gray, Fl.)

26. *HOSACKIA PURSHIANA*, Benth. in Bot. Reg. *Lotus sericeus*, Pursh. *Trigonella Americana*, Nutt. Gen. *Hosackia unifoliolata*, Hook. *H. elata*, *floribunda*, *pilosa*, and *mollis*, Nutt. in Torr. and Gray, Fl. A wide-spread and variable species, from a few inches to a foot or more high, smoothish, or even glabrous, pubescent, or soft-villous; the leaflets varying from ovate to lanceolate. North Carolina to Nebraska, Oregon, and California.

†† Flowers subsessile and mostly solitary in the axils of the leaves, ebracteate. Corolla exceeding the calyx. Leaves 3—5-foliolate; the leaflets obovate or oblong, mostly attenuate or scattered on the wing-dilated rachis. Small, procumbent or depressed annuals.

27. *H. SUBPINNATA*, Torr. and Gray, Fl. *Lotus subpinnatus*, Lag.; Hook. and Arn. Bot. Beech. t. 8. *L. Macraei*, Benth., forma subglabra. *L. Wrangelianus*, Fisch. and Mey. *H. Wrangeliana*, Torr. and Gray, l. c., forma glabrata. Villous-hirsute or glabrate. Teeth of the calyx about the length of the tube, or scarcely longer. Legume linear-oblong, 4—7-seeded, as in foregoing species, very much exceeding the calyx. The smoothish variety, with a glabrous legume (*Lotus Macraei*, Benth.), appears different enough from the very hairy form, which is less common in California. But intermediate states abound. *Anisolotus anthylloides*, Bernh., of the gardens, appears to be a slender and procumbent form. Chili, California, and Oregon.

28. *H. BRACHYCARPA*, Benth. Pl. Hartw. p. 306, No. 1073. Softly villous with long and whitish hairs, very much branched from the base, diffuse or procumbent; the flowers rather larger than in the last; the attenuated teeth of the calyx very much longer than its tube, and equalling or fully half the length of the oblong or linear-oblong very obtuse villous 2—4-seeded legume. California, on the Sacramento, and in that region. Dr. Brewer has collected greener and luxuriant specimens of this species, approaching *H. subpinnata*, having flattish pods which exceed the calyx; but the species still appears to hold good.

* * * *Obscure Species.*

H. BALSAMIFERA, Kellogg, in Proceed. Calif. Acad. ii. p. 125, said to be very viscid and villous, and to have pedunculate umbels, is wholly unknown to me.

Synopsis of the ECHINOIDS collected by Dr. W. Stimpson on the North Pacific Exploring Expedition, under the command of Captains Ringgold and Rodgers.

BY ALEX. AGASSIZ.

The collection of Echinoids brought home by Dr. Stimpson was at first placed in the hands of Mr. James M. Barnard for identification. Other occupations having prevented him from finishing the task he had undertaken, the collection was sent to Cambridge, where it was arranged while I was engaged in cataloguing the Echinoids of the Museum of Comparative Zoology. The specimens have thus been compared with the greater part of the originals of the Catalogue Raisonné of Prof. Agassiz, which are in the collection at Cambridge. Dr. Stimpson has collected so largely that the species which had not been described before, and which are here briefly noticed, form a large addition to the number of Echinoids previously known to science. He has visited several of the localities from which the French explorers had brought to the Jardin des Plantes many of the species mentioned in the Catalogue Rai-

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sonné of Agassiz. The collection made at the Bonin Islands was particularly valuable in a historical point of view, as it enabled me to obtain precise knowledge concerning the species of Echinoids which Mertens had collected there, and which, though described by Brandt in his *Prodromus*, had never been compared with the species described by Prof. Agassiz about the same time. The annexed list is intended simply as a catalogue to give an idea of the value of the collection, and the author hopes to return to this collection on another occasion, and to give more lengthy descriptions, and figures of the most interesting species. The notes of Dr. Stimpson, of the colors, and of the depth at which the Echinoids were found, have been added in quotation marks. These notes correspond to numbers attached to the specimens at the time they were collected.

PHYLLACANTHUS Brandt, Prod.

Syn. *Leiocidaris* Des., Syn. Echin. Foss.

PHYLLACANTHUS DUBIA Brandt, Prod.

This species is, at first glance, so closely related to *P. imperialis*, that unquestionably many of the errors which have been made in referring to *P. imperialis* this species, which is found in the Northern part of the Pacific Ocean, arose from this close resemblance. The spines of *P. dubia* are more slender than those of the *imperialis*. The longitudinal furrows are deep, equally well marked along the whole length of the spine. It can at once be distinguished from its congener by the narrowness of the median ambulacral zone, which does not equal in width the poriferous zone; the latter is somewhat depressed.

"Found among madrepores in one fathom, Port Lloyd, Bonin Islands. Secondary spines of a deep purple; primary spines ash color."—(W. Stimpson.)

PHYLLACANTHUS FUSTIGERA Barn. MS.

Small species, having one row of small tubercles round the scrobicular circle of the ambulacral plates. Furrow joining the ambulacral pores very deep. The spines are slightly plicated at the extremity; the whole surface minutely granulated. They are of a dark violet color, with two yellowish rings placed about one-sixth of an inch apart, below the point where the plications commence.

Taken at Puloe Leat Island, Gaspar Straits, Capt. Stevens.

GARELIA Gray. Proc. Lond. Soc., 1855.

GARELIA CINCTA A. Ag., Bull. Mus. Comp. Zool., 1863. Syn. *Echinothrix Turcarum* Pet??

"Spines of a purplish black color. Fine blue semicircular rays on the body, among the bases of the spines, may be often noticed."

"Hilo Hawaii. Found in rock crevices and under flat corals in the 4th subregion of the littoral zone. Port Lloyd, Bonin Islands."—(W. Stimpson.)

DIADEMA (Peters emend.) Seeig. v. Mossamb.

DIADEMA PAUCISPINUM A. Ag., Bull. Mus. Comp. Zool., 1863.

"Hilo Hawaii."—(W. Stimpson.)

DIADEMA NUDUM A. Ag.

Under the name of *Diadema turcarum* no less than three different species have been confounded. According to Peters, who had a specimen of what he calls *D. turcarum*, it is an *Echinothrix*, entirely different from the *D. setosum* of Rumph., which he says is a true *Diadema*. Having examined in the collection of the Museum at Cambridge, a remarkable sea urchin, received from the Sandwich and Kingsmill Islands from Mr. Garrett, which agrees suffi-
1863.]

ciently with the figure of Rumphius of *D. setosum*, Pl. 14, fig. 5, to show that they belong to the same genus, I find that it is an entirely different genus, which have I named *Echinostrephus*, Bull. Mus. Comp. Zool., 1863. The figure of Leske, Pl. 37, figs. 1, 2, which is also always quoted as *D. turcarum*, is a true *Diadema*, probably identical with the species which I have called *D. nudum*. The *D. turcarum*, or the *Echinothrix turcarum* of Peters, is a *Garelia*, and not *Echinothrix*, Peters having included in his genus *Echinothrix*, several species which had already been separated by Gray as a distinct genus from *Diadema*, *Garelia*. The *Echinothrix turcarum* Pet. may prove identical with the *Garelia cincta*, mentioned above, but as I have no specimens, and only the figure of Rumphius, I am unable to decide this point.

"Body everywhere, spines included, of a purplish black color. Soft parts bluish grey. Anus margined with light blue."

"Hong Kong, China, in crevices of rocks, 1 fathom."

"Island of Ousima, below l. w. m."—(W. Stimpson.)

THRICHODIADEMA A. Ag.

Ambulacra of a true *Diadema*; pores arranged in irregular vertical arcs of three pairs of pores; not spreading near the actinal region. Two rows of large tubercles in the ambulacral space. Interambulacral area with two vertical rows of large tubercles extending from the mouth to the abactinal region; on each side of these rows tubercles smaller than the ambulacral, arranged in vertical rows and not in oblique rows, as is usual in the *Diadematidae*. Abactinal system almost circular, which distinguishes this genus at once from all other known genera of this family. Shell thick; tubercles crenulated; spines resembling those of *Echinothrix*, but stouter and more tapering.

THRICHODIADEMA RODGERSII A. Ag.

Tubercles of ambulacra crowded together with a double zig-zag row of small miliary tubercles. Tubercles of interambulacral area arranged in eight vertical rows. Anal membrane small, covered with minute elliptical plates. The verticillations of the spines very close; whorls arranged in such a way that the surface of the spines appear longitudinally striated. Outline seen from above perfectly circular, regularly arched when seen in profile.

"Taken in clefts of rock at l. w. m. in Port Jackson, N. S. W. Color of a deep reddish purple."—(W. Stimpson.)

HETEROCENTROTUS MAMMILLATUS Br., Prod.

Dr. Stimpson had the good fortune to find at the Bonin Islands a number of specimens of a species of *Heterocentrotus*, which are undoubtedly the *H. Postellii* of Brandt. After carefully comparing the specimens with the originals of *Acrocladia hastifera* Ag., *A. mammillata* Ag., I have satisfied myself that the different species which have been distinguished principally by means of the great differences in the spines, are simply individual differences. The peculiar mode of growth of the spines by concentric longitudinal layers, giving rise in different specimens to bat-shaped, triangular, cylindrical or club-shaped spines. In specimens in which the spines have been broken and have grown out again afterwards, we find the best proof of the identity of these different modes of growth.

"Bonin Islands and Hilo, Hawaii."—(W. Stimpson.)

PODOPHORA QUOYI A. Ag., Bull. Mus. Comp. Zool. 1863.

"Hilo, Hawaii."—(W. Stimpson.)

COLOBOCENTROTUS LESKEI Br. Prod.

"Black above, dark reddish brown below; a circle of bright red around the mouth. On surf-washed rocks in 4th l., Port Lloyd, Bonin Islands."—(W. Stimpson.)

When specimens have remained some time in alcohol the spines become ash colored.

Colobocentrotus can readily be distinguished from *Podophora* by its peculiar ambulacra, the tubercles of which are arranged in four vertical rows, the median space raised above the poriferous zone; there is a strong depression between the tubercles of consecutive plates. The interambulacral plates are separated by a well marked suture on the abactinal side.

PARASALENIA GRATIOSA A. Ag., Bull. Mus. Comp. Zool., 1863.

"Body everywhere black; spines dark olive, with a ring of white at base of each.

"Among madrepores in 1 f. Port Lloyd, Bonin Islands."—(W. Stimpson.)

ECHINOMETRA BRUNEA A. Ag.

Differs from *E. lucunter* by the great height of the polar diameter of the test, as well as the uniform size of the tubercles and spines.

"Among coral at l. w. m., Bonin Islands."—(W. Stimpson.)

ECHINOMETRA LUCUNTER Lamk.

"Hilo, Hawaii."

"On the coral reefs of Tahiti."

"Body always dark purple; spine greenish; mouth red. Bonin Islands, in crevices of rocks and coral in 4th l."—(W. Stimpson.)

"Loo Choo Islands.

"Ousima."—(W. Stimpson.)

These specimens have been examined side by side with specimens compared to the originals of Lamarck sent to the Museum at Cambridge, through the kindness of Prof. Valenciennes. This species has been so often quoted by different explorers as occurring at localities as far apart as the West Indies, the Cape of Good Hope, Mauritius, East India Islands, in the Pacific Ocean, at the Low Isl., the Sandwich Isl., &c., that it became an interesting question carefully to compare specimens from these different localities. It became at once apparent that we had one species in the West India Islands, (*E. Michelini* Des.) one species at Mauritius, Zanzibar, (*E. acufera*.) associated with *E. lucunter* Lamk., so that the true *E. lucunter* of Lamarck is not confined to the Pacific Ocean, and seems to enjoy a very extensive range of distribution. Besides the localities here mentioned there are specimens in the Museum of Comparative Zoology at Cambridge from the Kingsmill Islands, the Society Islands and the Navigators Islands, and also from Tor in the Red Sea, which have been received from the Imperial Museum at Vienna.

Heterocentrotus mammillatus Br., appears almost always associated with *E. lucunter*. These two Echinoids are particularly characteristic of the great Belt which extends on both sides of the Equator from the east coast of Africa to the Sandwich Isls. *Hipponoë sardica* Gray, which is also quoted as occurring with these two species, may prove identical with *Hipponoë violacea* A. Ag., but the materials on hand at present are not sufficient to decide this point, as it is extremely difficult to ascertain what are specific differences in this family of Hipponoidæ, owing to the great difference between the young and the adult. Young specimens of the common *Tripneustes ventricosus*, from Florida, having even been placed into a new genus, *Heliechinus*, by Girard, (*Heliechinus Gouldii*, Gir.) Supposing, formerly, that this species (*E. lucunter*) had not been described, and many specimens having found their way into other Museums from the collection at Cambridge under the name of *Echinometra picta* A. Ag., I take this opportunity to correct my mistake.

ARBACIA AEQUITUBERULATA Gray, Proc. Zool. Soc., 1855.

"Madeira."

"Porto Praya, Cape de Verde Islands."—(W. Stimpson.)

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GLYPTOCIDARIS A. Ag.

Pores arranged as in *Heliocidaris*, in narrow, irregular rows; do not spread near actinostome. Tubercles crenulated; spines tapering, long. Two principal rows of interambulacral and ambulacral tubercles; miliaries not numerous.

GLYPTOCIDARIS CRENULARIS A. Ag.

Median interambulacral space bare; tubercles increasing very gradually towards the lower edge, where they are large. Four short rows of small tubercles on lower surface. Spines long and stout, longitudinally striated, resemble those of the genus *Acrocidaris*.

"Light brown or pale reddish brown. One specimen was greenish brown; another cream colored."

"In 6 f. shelly bottom, comparatively rare. Hakodadi Bay, Isl. of Jesso."—(W. Stimpson.)

TOXOCIDARIS DELALANDI A. Ag., Bull. Mus. Comp. Zool., 1863.

"Color reddish or purplish, sometimes brownish. Common about l. w. m. and in 4th l., under stones. Port Jackson, N. S. W."—(W. Stimpson.)

TOXOCIDARIS NUDA A. Ag.

Great size of the actinostome; cuts not as deep as in other species of this genus; pores arranged in arcs of 5—7 pairs; tubercles of interambulacral space far apart, two rows very prominent, far exceeding in size the others; miliaries few and small; secondary tubercles small, equal in size to the ambulacral tubercles, which are arranged in two rows; spines of dried specimens of a bluish color.

"Hilo, Hawaii."—(W. Stimpson.)

"N. E. end of Nippon."—(W. Stimpson.)

TOXOCIDARIS CRASSISPINA A. Ag.

Miliaries few in number; ambulacral and interambulacral tubercles of equal size; spines long, equalling in length the diameter of the test; coronal plates high; pores arranged in regular arches from 9 to 10 pairs, diminish in number on lower surface.

"Color entirely black, except a little reddish below the mouth. Not uncommon under stones and in crevices of rocks in 4th l., Ly-ee-moon Passage, near Hong Kong, China."—(W. Stimpson.)

"Yellowish, spines dark olive. In 25 f., among clean stones and nullipores off the headland of Hakodadi, Isl. of Jesso, and N. E. end of Nippon."—(W. Stimpson.)

TOXOCIDARIS GLOBULOSA A. Ag.

Primary and secondary tubercles of the same size; outline globular; miliaries numerous; poriferous zone broad, increasing in breadth; pores arranged in arcs of 8 or 9 pairs, near the mouth; spines of dried specimens dark violet, short and slender.

"Keelung, Formosa."—(W. Stimpson.)

TOXOCIDARIS DEPRESSA A. Ag.

Remarkable for its extreme flatness on the lower surface and the great depression of the polar diameter. Tubercles numerous, uniform in size; coronal plates long; spines slender, rather short, scarcely equalling in length one quarter of the diameter. Poriferous zone broad, as broad as the median ambulacral space; pores arranged in very slightly arched arcs of 6 to 7 pairs of pores.

"N. E. end of Nippon."—(W. Stimpson.)

PSAMMECHINUS SUBANGULOSUS Ag., Cat. Rais.

"Color reddish and brownish red of various shades. Very common in 4th l. and at l. w. m. on rocks, chiefly in crevices. Simon's Bay, Cape of Good Hope."—(W. Stimpson.)

PSAMMECHINUS INTERMEDIUS Barn. MS.

Coronal plates high; tubercles of interambulacral area of uniform size, arranged in ten vertical rows; in ambulacral space in four. Two vertical rows of small tubercles in poriferous zone. The third outside vertical row of pores very irregular, forming small arcs of two to three pairs of pores. Spines short and stout; ovarian openings large. Outline somewhat depressed; mouth opening small.

"Hakodadi Bay."

"Ousima."—(W. Stimpson.)

PSAMMECHINUS PULCHERRIMUS Barn. MS.

The tubercles are quite small, closely packed together, of uniform size, arranged in slightly bent horizontal rows, four to eight in each interambulacral plate, according to the position; large miliaries fill up the intermediate space between the horizontal rows. In the ambulacra there are three small tubercles on each plate, making thus horizontal rows of sixteen tubercles in the interambulacra and six in the ambulacra. The spines are very minute, slender and sharp. The test is thick; pores are arranged in oblique lines of four, and the rows are separated by small tubercles. Notches round the mouth very marked and deep for this genus.

"Color light olive, greenish above, brownish below. Found among stones and Laminariæ in $\frac{1}{2}$ f. Hakodadi Bay."—(W. Stimpson.)

TOXOPNEUSTES DROBACHIENSIS Ag., Cat. Rais.

"Very common in 10 fathoms, gravel and muddy gravel. Seniavine Straits, W. shore of Behring's Straits."—(W. Stimpson.)

"Very common in 2 f. mud, off shingle beaches in Avatscha Bay, Kamtschatka."—(W. Stimpson.)

See my remarks about the geographical distribution of this species in Proc. Bost. Soc. N. H., vol. ix., p. 191.

TOXOPNEUSTES CARNOSUS Barn. MS.

This species is closely allied to *T. drobachiensis*, from which it is easily distinguished by the flesh color of its test and pink color of its spines. The pairs of pores are placed very close together, so that each arc is narrow, containing from 5 to 6 pairs. Two principal rows of tubercles with miliaries not numerous, but prominent, arranged in a circle round the primary tubercle. The spines are short and slender; the notches of the actiuostome scarcely perceptible.

Dredged in Behring's Straits. Capt. Rodgers. Gulf of Penginsk, Ochotsck Sea; Capt. Stevens.

LOXECHINUS PURPURATUS A. Ag., Bull. Mus. Comp. Zool., 1863.

"Taken among rocks at l. w. m. near San Francisco, Cal., (Sir Francis Drake's Bay;) occasionally brought to market."—(W. Stimpson.)

SPHÆRECHINUS BREVISPINOSUS Des. Syn., Echin. Foss.

"Taken by the natives by diving, in 2 f. rocks. Funchal Bay, Madeira."—(W. Stimpson.)

"A young specimen, probably. In 20 f. among nullipores. Porto Praya, Cape de Verdes Ids."—(W. Stimpson.)

MICROCYPHUS ELEGANS A. Ag.

Remarkable for the great number of small tubercles scattered irregularly round the two principal vertical rows of interambulacral tubercles. Depressions at junctions of plates, with a tendency of running into one another, both in the ambulacral and interambulacral spaces. The space free from spines quite small, hardly more marked than in *Goniocidaris* in the interambulacral region; comparatively broad in the ambulacral region.

"In 25 f., coarse gravel and nullipores off the headland of Hakodadi, Island, Jesso, Japan."—(W. Stimpson.)

TORUMATICA CONCAVA Gray, Proc. Zool. Soc. Lond. 1855.

"Common; found covering the bottom in some spots off the Coast of China, near Hong Kong, in 15—20 f., mud. Also found sparingly in the inner bays in 4 to 6 f."

"Cream colored, with five broad rays of purplish above."—(W. Stimpson.)

TEMNOPLEURUS REEVESII A. Ag., Bull. Mus. Comp. Zool., 1863.

"In 8 f., shelly ground, channel of Hong Kong harbor, China. Color pale yellowish or greenish yellow; spines annulated with dark violet."—(W. Stimpson.)

ANTHECHINUS A. Ag.

Small pentagonal sea-urchins, with prominent abactinal system and openings at angles of plates. The ambulacra convex, projecting beyond the level of interambulacral space, which is quite depressed. Median ambulacral and interambulacral space free from spines. The bare space follows the line of plates and is not sunken, as in *Microcyphus* and *Temnopleurus*, but slopes gradually to the edge of the plate. Tubercles very minute, somewhat larger round the mouth, where they are arranged in diverging rows, extending about half way to the abactinal area, while they are scattered irregularly on the portion of the plates, which they cover partially. Pores arranged in single pairs in a vertical row.

ANTHECHINUS ROSEUS A. Ag.

Genital plates perfectly smooth, with a large opening, like a notch, in the edge of the plate. Anal plates numerous, covered with minute spines. The bare space is violet in dry specimens and the spines are greenish. The spines are exceedingly slender and sharp, resembling those of *Salmacis*, though much smaller in proportion to the size of the sea-urchin. Polar diameter, as great as the transverse. "Japan."—(W. Stimpson.)

TEMNOTREMA A. Ag.

Small sea-urchin, almost globular, with marked grooves at the sutures of the plates, as in *Salmacis*. Two principal vertical rows of tubercles; smaller tubercles crowded irregularly over the rest of the plate. Abactinal system pentagonal, with prominent angles, the anal system consisting of four plates as in *Echinocardis*. Spines like those of *Salmacis*, though finer in proportion and more deeply grooved. Pairs of pores arranged in a single vertical row.

TEMNOTREMA SCULPTA A. Ag.

Test, mottled with white, violet and patches of brown, has a greenish tinge; spines of lower surface, near the mouth, much larger than those of the abactinal part of the test. Actinal system smooth, with the exception of ten large plates round the opening of the mouth; spines ringed with white and violet.

"Kagosima Bay, Japan."—(W. Stimpson.)

HIPPONOE VIOLACEA A. Ag., Bull. Mus. Comp. Zool., 1863.

"Taken by the natives by diving at Hilo, Hawaii."—(W. Stimpson.)

Found under stones on gravelly bottom below 1. w. m., especially among sea-weeds.

"Katawaisima Straits, Island of Ousima. Body purplish red; spines white."—(W. Stimpson.)

"Loo Choo Islands."—(W. Stimpson.) Fragments only.

MESPILIA GLOBULUS Ag., Cat. Rais.

"Ousima, Japan."—(W. Stimpson.)

Two species of *Fibularia*, one from Kagosima and the other from the China Seas, too imperfect for description.

ECHINOCYAMUS TARENTINUS Ag., Cat. Rais.

"Taken in 15 f. sand. Funchal Bay, Madeira."—(W. Stimpson.)

Also a species of *Echinocyamus*; "taken in abundance in 5 f. sand. Kagosima Bay, Japan. Color waxen white."—W. Stimpson.)

"Ousima."—(W. Stimpson.)

ECHINOCYAMUS AUSTRALIS Ag., Cat. Rais.

"Coral Sea of Australia, Groper Shoal."—(W. Stimpson.)

A species of *Laganum* from the Loo Choo Islands, too imperfect for accurate description.

LAGANUM PUTNAMI Barn. MS.

Resembles *Lag. depressum*, Ag., in its general outline, but has, like *Lag. Peroni*, the genital opening far outside the rosette. The ambulacral rosettes are very pointed and slender. Anus nearer the edge than in other species of this genus; lower surface deeply grooved by the straight ambulacral furrows; mouth not sunken as in *Peroni*.

"Ousima."—(W. Stimpson.)

RUMPHIA LESUEURI A. Ag., Bull. Mus. Comp. Zool., 1863.

"Color pale red above, with five curves of paler color near edge of interambulacral spaces. Below, pale yellowish green. Abundant in 6—10 f. sandy mud among the Islands near Hong Kong, China."—(W. Stimpson.)

ECHINARACHNIUS ASIATICUS Mich., Rev. et Mag. Zool., 1859.

"Covers the coarse, black, sandy floor of the sea off the coast of Kamtschatka, near Petropaulski. Found at various depths from 30 to 70 fathoms; color reddish brown when alive."—(W. Stimpson.)

SCAPHECHINUS Barn. MS.

This genus is closely allied to *Echinarachnius*. It has, however, remarkable points of difference in the small number and great thickness of the walls joining the two floors, as well as in the mode of branching of the grooves on the lower surface, which is exactly that of the fossil genus *Scutella*. It has the ambulacral rosette of *Echinarachnius* and the depression of the interambulacral space on the upper surface of *Arachnoides*.

SCAPHECHINUS MIRABILIS Barn. MS.

Test depressed in interambulacral spaces; outline somewhat scalloped; genital openings outside of the pentagon of the centre of the rosette.

"Seined on sandy shores. The sandy bottom of Hakodadi Bay, (north side,) from 1. w. m. to 1—2 f., is covered so closely with this species that no space of a square foot can be found free of them. In some places a boat-hook can not be thrust to the bottom without striking one. Color above deep purplish crimson, below light olive. The deep crimson pigment comes off easily and stains the hand. Hakodadi, Island of Jesso."—(W. Stimpson.)

Fragments of a new species of *Mellita* from the China Seas, in lat. 23°.

LOBOPHORA TEXTA A. Ag.

Resembles in outline the *L. truncata*, and would readily be referred to that genus from its general appearance. The position of the anus is also somewhat more marginal than in *L. bifissa*, being placed about opposite the middle of the lunule. On opening it we find that the lower floor is covered with a delicate grooved work, as in *Lobophora*, the grooves being mainly arranged on both sides of the ambulacral tubes, forming a beautifully carved elongated rosette round the mouth. We find nothing of this arrangement in *L. bifissa*. Lunules small, entirely closed, placed some distance from the margin. Teeth are much larger in proportion to the size of disk than in *Lobophora bifissa*.

"Dredged in 12 f. clean sand at Tanegasima, (Isl. south of Japan,) also in 10 f. sand off the east coast of Ousima. Color dark red, darkest below."—(W. Stimpson.)

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A young specimen? was dredged in the China Sea in lat. 23°, in 20 f. sand.

ROTULA RUMPHII Kl.

A young specimen? "Taken in 20 f. nullipore bottom, Porto Praya, Capa de Verdes."—(W. Stimpson.)

A species of *Echinoneus*, not sufficiently well preserved to admit of determination, was taken at the Loo Choo Islands.

Fragments of a large *Spatangus* allied to *Sp. purpureus*, taken in 50 f. in the Straits of Sangar, on the steamer Hancock, Capt. Stevens.

MARETIA ALTA A. Ag.

Differs from the *M. planulata* Gray, by the great convexity of the abactinal region. The large spines are more slender and much less numerous on the abactinal portion of the test. The whole of this is covered with quite minute silk like bristles, while in the *M. planulata* many of the bristles are stout and nearly as long as the diameter of the test. The large tubercles are all limited to the lower portion of the interambulacral space except one or two, while in *M. planulata* the whole interambulacral space is covered with large tubercles. "Of a light buff color, above radiated with rows of flesh-colored patches. Taken commonly in 5 f., black sand, in Kagosima Bay."—(W. Stimpson.)

LOVENIA SUBCARINATA Gray, Proc. Zool. Soc., Lond., 1855.

"In 10 f. mud off Tamtu Island, Coast of China, near Hong Kong. Small ones common in 5 f. mud in the inner bays; young of a pinkish and fawn color; adult clear dark brown."—(W. Stimpson.)

It seems to me very doubtful whether this species is a true *Lovenia*. It has characters which place it close to *Breynia*, while the pouches at the base of the large spines are similar to those of *Lovenia*. The pouches are much more limited in their position than in *Lovenia hystrix*.

LOVENIA TRIANGULARIS A. Ag.

This species is at once distinguished from either the *hystrix* or the California species of this same genus, by the great width of the anterior region and the position of the large tubercles crowded together close to the anterior ambulacra. The position of the mouth is more central than in other species of this genus.

"Dark reddish above, sometimes purplish; longer spines annulated with white and red; below, color much lighter. Dredged in 5 f., black sand, Kagosima Bay."—(W. Stimpson.)

LESKIA MIRABILIS Gray. Cat. Brit. Mus.

A single broken specimen of this interesting species. The posterior part, containing the pentagonal pyramid covering the opening of the anus, quite well preserved.

"In 20 f., mud near Gr. Lema, off Coast of China, near Hong Kong. Dead specimens show that it grows to a length of three inches. Of a pale straw color; feet blood-red, palish."—(W. Stimpson.)

ECHINOCARDIUM STIMPSONII A. Ag.

More elongated than *E. cordatum*, to which it is closely allied; easily recognized by the great slope of the anterior ambulacral region; tubercles of the oral surface distant, position of the genital openings nearer the centre than in the *E. cordatum* Gray; the posterior interambulacrum is not prominent.

"Taken in 10 f. sandy mud in Kagosima Bay, Japan. Color somewhat yellowish,—hay color."—(W. Stimpson.)

'Another species of this genus, resembling *E. gibbosum*, was brought from the Cape of Good Hope; the specimens were probably only young.